<u>AMENDMENTS TO THE SPECIFICATION</u>

Please replace Paragraph **[0022]** with the following paragraph rewritten in amendment format:

[0022] The MEAs 4,6 and bipolar plate 8 are stacked together between stainless steel clamping plates 10,12 and end contact elements 14,16. The end contact elements 14,16 as well as both working faces of the bipolar plate 8 contain a plurality of grooves or channels 18, 20, 22, and 24 for distributing fuel and oxidant gases (i.e., H_2 & O_2) to the MEAs 4,6. Nonconductive gaskets or seals 26, 28, 30, and 32 provide seals and electrical insulation between the several components of the fuel cell stack. Porous conductive diffusion media layers 34, 36, 38 and 40 press up against the electrode faces of the MEAs 4, 6. Such electrically conductive porous diffusion media layers, may be constructed of woven graphite, graphitized sheets, or carbon paper that facilitate dispersion of the reactants over the surface of the electrodes and hence over the membrane facing the electrode. Conductive gas diffusion media layers are well known in the art, such as the commercially available ~~Toray~~<u>TORAY®</u> graphite-fiber paper made by Toray Carbon Fibers America, Inc. The end contact elements 14,16 press up against the gas diffusion layers 34,40 respectively, while the bipolar plate 8 presses up against gas diffusion media layer 36 on an anode electrode face 19 of the MEA 4, and against gas diffusion media layer 38 on a cathode electrode face 21 of MEA 6. Hydrogen gas is introduced at the anode 19 via supply plumbing 44 connected to a storage device 48. Oxygen or air is introduced at the cathode 21 via appropriate supply plumbing 42, where it is flows into the porous electrode. Air may be supplied to the cathode 21 from the ambient, and hydrogen to the anode 19 from a methanol or

gasoline reformer, or the like. Exhaust plumbing (not shown) for both the H_2 and O_2/air sides of the MEAs 4,6 will also be provided. Additional plumbing 50, 52, 54 is provided for circulating coolant through the bipolar plate 8 and end plates 14,16.

Please replace Paragraph **[0027]** with the following paragraph rewritten in amendment format:

[0027] Preferably, the major surface 84 of the electroconductive element 70 is formed to have an undulated configuration comprising a plurality of peaks and valleys. The peaks correspond to a plurality of lands 74 which define therebetween the plurality of valleys, which correspond to grooves 76. <u>Thus, underlying each groove 76 is a land 88 on an opposite side to the major surface 84 of the electroconductive element 70.</u> The lands and grooves 74,76 will cover the entire major surface 84 of the impermeable electrically conductive element 80 that engages the fluid distribution layer 68. When the fuel cell is fully assembled, the lands 74 press against the fluid distribution layer 68, which, in turn, presses against the MEA 60. This surface configuration forms the flow field of gas flow channels 72 through which the fuel cell's reactant gases (i.e., H_2 or O_2) flow in a tortuous path from an inlet to an outlet side (not shown) of the electroconductive element 70. As appreciated by one of skill in the art, an undulated surface may comprise a variety of shapes, including trapezoidal, rectangular, triangular, waved, or serrated, so that flow channels 72 may be formed in a trough or valley between peaks. Gases flow into and out of the fluid distribution layer 68 into the MEA 60 via the gas flow channels 72. Further, the fluid distribution layer 68 also transports liquids to or away from the MEA 60.

Please replace Paragraph [0041] with the following paragraph rewritten in amendment format:

[0041] In certain preferred embodiments of the present invention, the average pore size of the fluid distribution layer 68 is larger than the average pore size of the liquid distribution media 82. The fluid distribution layer 68 is less hydrophilic than the adjacent liquid distribution media 82 (such that water is drawn out of the fluid distribution layer 68 into the liquid distribution media 82). The capillary force in a smaller pore size draws liquids into the liquid distribution media 82. One preferred type of porous fluid distribution layer 68 is constructed of graphite fibers, such as the ~~Toray~~<u>TORAY®</u> carbon paper, that has been dipped in a hydrophobic polymer solution, such as a solution comprising a casting solvent and polytetraflouroethylene (PTFE). The hydrophobicity of such a fluid distribution layer 68 is typically less than the hydrophobicity of the catalyst layer.

Please replace Paragraph [0055] with the following paragraph rewritten in amendment format:

[0055] In an alternate preferred method of forming an electroconductive element 70 according to the present invention, the liquid distribution layer 82 is formed of a sintered porous metal coating. The impermeable electrically conductive element 80 is preferably made of conductive metal and has the lands 74 and grooves 76 formed prior to applying the liquid distribution media 82. It is preferred that the flow channels 82 are formed by stamping or coining. A metal particle slurry or liquid distribution media 82 precursor is formed by mixing a polymer binder with metal particles. Preferably, the metal particles are homogeneously mixed with polymer in the metal particle slurry, and

have a particle size of about 5 to 30 μm. The metal particle slurry is applied to the major surface 84 of the impermeable electrically conductive plate 80. The entire electroconductive element 70 is then fired by application of heat, preferably in the temperature range of about 400° to about 2000°F, at which temperature the binder is volatilized by the heat and removed and the metal particles are sintered to one another, as well as to the underlying impermeable plate to form a porous metal liquid distribution media 82 layer. Conductive metal particles useful for the present invention include niobium, gold, platinum, tantalum, and alloys thereof, as well as other metal alloys, such as stainless steel (e.g. 316) or INCONEL® metals, which are high strength austenitic nickel-chromium-iron alloys ~~Inconel~~ (e.g. INCONEL® ~~Inconel~~ 601). A non-limiting example of polymers useful as a binder for the present invention includes phenolics. An example of a reticulated porous metal foam coating that is commercially prepared and available, is sold under the trade name ~~Metpore~~METPORE® from Porvair Fuel Cell Technologies of Henderson, North Carolina, and is useful with the present invention.